

OIB - DC-8 10/23/14 Science Report

Aircraft:

[DC-8](#) ([See full schedule](#))

Date:

Thursday, October 23, 2014

Mission:

OIB

Mission Location:

Antarctica

Mission Summary:

F04 Pole Hole 88 East

Accomplishments

- Low-altitude survey (1,500 ft AGL) along 88°S between 110°E and 70°W.
- ATM, albedo, KT-19, snow, Ku-band, MCoRDS, gravimeter, and DMS were operated on the survey lines.
- Satellite tracks: samples half of all future ICESat-2 tracks and half of all CryoSat-2 tracks
- Repeat Mission: new mission.

Instrument	Operated	Data Volume	Instrument Issues/Comments
ATM	yes	13 GB	None.
CAMBOT	yes	23 GB	None.
DMS	yes	27.9 GB	None. Recorded 3,949 frames.
Snow Radar	yes	185 GB	None.
Ku-band Radar	yes	185 GB	None.
MCoRDS	yes	1.4 TB	None.
KT-19	yes	10 MB	None.
Albedo	yes	1.3 GB	None.
Albedo camera	yes	150 MB	None.
Gravimeter	yes	2 GB	None.

Mission Report (Michael Studinger, Mission Scientist)

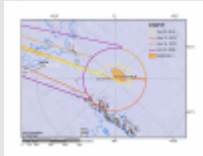
Today's mission plan is a new design, and its purpose is to sample the surface topography at the southern apex of half of all planned ICESat-2 orbits. Specifically, this flight samples the ground tracks on the east Antarctic plateau side of the Pole. In this way, we can provide ?ground truth? for every ICESat-2 orbit with just two flights, including Pole Hole 88° West as well as this one. The vertical stability of the surface must also be quantified for this approach to succeed, and this flight provides a baseline measurement for this purpose. In addition to ICESat-2 coverage 88°S also covers all CryoSat-2 orbits.

Clouds on the satellite image and in the forecast models predicted challenging conditions, but we were confident that we would be able to get below the cloud deck, which turned out to be the case. We turned off all radar and lasers 60 nm before the Pole and turn them back on 60 nm behind the Pole in order to not interfere with any measurements on the ground. We flew directly over South Pole at 17:21:38 UTC at 34,000 ft MSL.

LiDAR data collection started 10/23/2014 17:35 UTC and ended at 19:09 UTC. In total we collected 1.6 hours of science data. ATM recorded close to 100% surface returns with only a few minutes lost due to low clouds.

Images:

Figure 1: Today's trajectory in yellow.



[Read more](#)

Figure 2: DMS image from 34,000 Ft MSL of Scott-Amundsen Station at



[Read more](#)

Submitted by:

Michael Studinger on 10/23/14

Related Flight Report:

DC-8 10/23/14

Flight Number:

150109

Payload Configuration:

Operation IceBridge 2014

Nav Data Collected:

Yes

Total Flight Time:

11.8 hours

Submitted by:

Frank Cutler on 10/24/14

Flight Segments:

From:	SCCI	To:	SCCI
Start:	10/23/14 12:00 Z	Finish:	10/23/14 23:48 Z
Flight Time:	11.8 hours		
Log Number:	158003	PI:	Michael Studinger
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Comments:	Pole Hole East at 1,500 ft AGL.		

Flight Hour Summary:

	158003
Flight Hours Approved in SOFRS	300
Total Used	292.1
Total Remaining	7.9

158003 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining
10/06/14	150101	Science	1.2	1.2	298.8
10/07/14 - 10/08/14	150102	Science	5.2	6.4	293.6
10/08/14	150103	Science	3.7	10.1	289.9
10/13/14	150104	Transit	10.4	20.5	279.5
10/13/14	150105	Transit	3.2	23.7	276.3

10/16/14	150106	Science	11	34.7	265.3
10/18/14 - 10/19/14	150107	Science	11.9	46.6	253.4
10/20/14	150108	Science	11.7	58.3	241.7
10/23/14	150109	Science	11.8	70.1	229.9
10/25/14	150110	Science	11.4	81.5	218.5
10/26/14 - 10/27/14	150111	Science	11.9	93.4	206.6
10/28/14	150112	Science	11.5	104.9	195.1
10/29/14	150113	Science	10.9	115.8	184.2
10/31/14	150114	Maintenance	2.8	118.6	181.4
11/01/14	150115	Maintenance	3	121.6	178.4
11/02/14	150116	Science	10.9	132.5	167.5
11/03/14	150117	Science	11.1	143.6	156.4
11/05/14	150118	Science	11.4	155	145
11/06/14	150119	Science	11.1	166.1	133.9
11/07/14	150120	Science	10.9	177	123
11/08/14	150121	Science	11.4	188.4	111.6
11/10/14	150122	Science	11.2	199.6	100.4
11/11/14	150123	Science	11.2	210.8	89.2
11/13/14	150124	Science	11.4	222.2	77.8
11/14/14	150125	Science	11.5	233.7	66.3
11/15/14	150126	Science	11.2	244.9	55.1
11/16/14	150127	Science	11.1	256	44
11/21/14	150128	Science	11.2	267.2	32.8
11/22/14	150129	Science	10.8	278	22
11/24/14	150130	Transit	2.9	280.9	19.1
11/25/14 - 11/26/14	150131	Transit	11.2	292.1	7.9

Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

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Page Editor: Erin Justice

NASA Official: Bruce A.

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